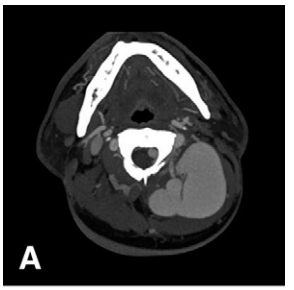
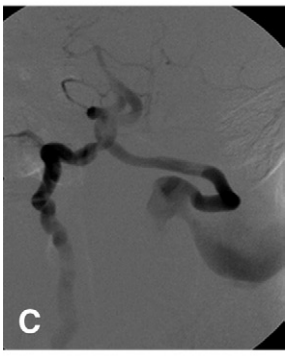
Vertebral arteriovenous fistula

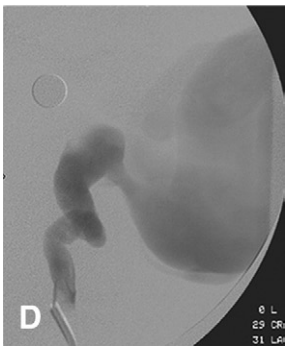
Hai Zhong, PhD, and **Guangrui Shao, PhD, MD,** *Jinan, Shandong, China*

A 38-year-old man presented with a pulsatile cervical mass and tinnitus for 10 months. His symptoms had begun after he received a blunt trauma on the left neck. An axial computed tomography angiography of the neck (A) demonstrated an abnormal communication between the vertebral artery and the markedly dilated internal jugular vein on the left neck. An engorged epidural vein on the left ventral aspect of the spinal canal was also identified. Volume rendering (Cover) and coronal maximum-intensity projection images (B) showed an abnormal dilated vascular space adjacent to the left vertebral artery at the C1-2 level.

Right vertebral angiography (C) demonstrated an abnormal vascular connection between the left extracranial vertebral artery and the epidural venous plexus and the internal jugular vein. A steal phenomenon to the fistula was clearly shown. Left vertebral angiography (D) revealed a high-flow arteriovenous fistula (AVF) at the C1-2 junction. A laterally directed fistulous hole drained into the epidural vein and internal jugular venous channel. A detachable coil was positioned in the fistula site. The patient recovered uneventfully.







DISCUSSION

Vertebral AVFs are characterized by abnormal direct communications between the vertebral artery, or its branches, and the neighboring venous system. Most of these lesions are traumatic in origin, either accidental or iatrogenic. Nontraumatic AVFs can be congenital or spontaneous. Many patients remain asymptomatic, or the AVF manifests as tinnitus or vertebrobasilar ischemic symptoms such as vertigo and diplopia. Spinal dysfunction and congestive heart failure are rare.

Conventional catheter angiography is the definitive radiologic examination for vertebral AVF. It can clearly show the anatomic features of a vertebral AVF and provide information on the hemodynamics that are needed for treatment planning. CTA is an alternative method of imaging a vertebral AVF.[1] Several types of postprocessing technology can be used to provide 3-dimensional reconstructions and demonstrate vascular abnormalities. Endovascular treatment of vertebral AVFs is a reliable method of occlusion that can avoid possible morbidity and mortality related to surgical treatment.[2]

REFERENCES

1. Stuhlfaut JW, Barest G, Sakai O, Lucey B, Soto JA. Impact of MDCT angiography on the use of catheter angiography for the assessment of cervical arterial injury after blunt or penetrating trauma. AJR Am J Roentgenol 2005;185:1063-8.
2. Hauck EF, Nauta HJ. Spontaneous spinal epidural arteriovenous fistulae in neurofibromatosis type-1. Surg Neurol 2006;66:215-21.

Submitted Jan 22, 2010; accepted Feb 14, 2010.

From the Radiology Department, the Second Hospital of Shandong University.
Competition of interest: none. (e-mail: sdzhonghai@sina.com.cn).
The editors and reviewers of this article have no relevant financial relationships to disclose per the JVS policy that requires reviewers to decline review of any manuscript for which they may have a competition of interest.
J Vasc Surg 2011;53:492
0741-5214/$36.00

doi:10.1016/j.jvs.2010.02.025